



ZONE/LTR	REVISIONS	DATE	APPROVED
-	REL ON C/N N8142	10-7-75	KAC
A	C/N N8132 REVISED & UPDATED	1/20/76	KAC
B	C/N N8142 REVISED & UPDATED	6/2/76	KAC
C	C/N S 206 REVISED NOTES 1, 3 & 4. DELETED NOTE 2. ADDED NOTES 7 & 10. ALL "S" TEST POINTS WERE "T". ADDED INPUT/OUTPUT TB & PC RECEPT PIN DESIGNATIONS. ADDED DRIVERS & GENERALLY REVISED CXT IN LAMP LOGIC SECTION. TDE-1 & 2 SEC. WAS 2 SEC. (2 PLACES) REVISED CXT TO "AND" GATES FOR LOCAL.		
D	C/N S163 REVISED NOTE 2. ADDED TABLE I. PIN 7 WAS 10. PIN 63 WAS 70. LOCKED OUT CROSS COMMANDS WITH SELECTED EST COMMANDS. CONNECTED PYS TO FLASH MEMORY RESET. TESTER AND EXPANDED MEMORY DELAY AND SET-UP TIMES.	3/31/77	FT
E	C/N S 206. ADDED TDE-1 & TDD ELEMENTS. CONNECTED P50D TO TESTER WAS DIRECT. START [OPEN] OUT. CONNECTED P50D TO PMSH WAS DIRECT STOP [CLOSE] OUT. REVISED TABLE I.	1/18/77	KAC
F	C/N S 218. DELETED "NOISE FILTERING" RESET. DELETED TDE-1. ADDED (C) OF GATES TO "FLASH" RESET. MOVED TDD TO LOCAL AND OUTPUT CHIMES AUTO MEMORY DELAY TIMES.	6/1/77	KAC
G	C/N S222 INCORPORATE CUSTOMER COMMENTS. TDD'S IN LAMP LOGIC WERE 2.0 AND NOW ARE 4.8. ALSO ADDED NEW P50P AND P50T TIME DELAYS (P50D OUTPUT P44 TO WAS G3, TABLE MIN 2.5 WAS 2.8 (4 PLACES))	7/24/77	KAC

TABLE I

CIRCUIT ELEMENT	OUTPUT DELAY & TIME TO LATCH (m SEC)			COMMENTS
	MIN.	TYP.	MAX.	
"START/STOP"	2.5	8.5	20.5	
"LAST COMMAND"	0.35	1.1	2.5	
"FLASH"	2.5	8.5	20.5	OUTPUT CHANGES WITHIN 1 μSEC
"AUTO"	2.5	8.5	20.5	
P50P AND P50T	2.5	8.5	20.5	NOISE FILTERING

- NOTES:
- WHENEVER POWER IS APPLIED, J-K FLIP FLOP COMES ON IN RESET STATE (MANUAL MODE). IF DIRECT SET AND DIRECT RESET ARE BOTH LOGIC "1" LEC ASSUMES AUTO MODE.
 - "RESET" OVER RIDES "SET" AND MEMORIES COME ON RESET WHEN POWER IS APPLIED. DELAY AND (LATCH-UNLATCH) SET-UP TIMES ARE SHOWN IN TABLE I (ABOVE).
 - TIME BASE RUNS CONTINUOUSLY. LOGIC COMPATIBLE SQUARE WAVE INPUT 10 HZ, 50% DUTY CYCLE (APPROX) TWO CLOCKS (1 BACK UP) PER SSCS CABINET.
 - LAMP LOGIC DESIGNED FOR:
 - VALVE FULLY OPEN SWITCH CONTACTS NORMALLY OPEN BUT CLOSED WHEN VALVE IS FULLY OPEN.
 - VALVE FULLY CLOSED SWITCH CONTACTS NORMALLY OPEN BUT CLOSED WHEN VALVE IS FULLY CLOSED.
 - TORQUE SWITCHES CLOSED WHEN TORQUE IS LOW. PVT (PVT) MUST BE WIRED TO LOGIC 1 FOR NON-VALVE APPLICATIONS.
 - LOGICAL SIGNAL NAMES ARE DESIGNATED BY FOUR CHARACTER MNEUMONIC SUCH AS (CSTC, P50P, BFP1). FIRST CHARACTER DESIGNATES SIGNAL SOURCE OR DESTINATION:
 - C- CONTROL BUFFER
 - MORX- GENERAL PURPOSE
 - P- PROGRAMMING PANEL.
 - B- FIELD BUFFER!
 - FOR FURTHER EXPLANATION SEE NOTE 4 ON KDB 2316 "SSCS SINGLE CHANNEL BLOCK DIAGRAM/SCHEMATIC".
 - WHEN REMOTE ACS IS USED (25 CHANNELS MAX. PER CABINET) ACS BUFFER IS WIRE "OR" BY C.C. SAME LEC PIN ACCEPTS EITHER MCR OR ACS COMMAND. CONTROL PRIORITY IS ESTABLISHED BY SWITCHING OF 28 VOLT SUPPLIES TO EITHER MCR OR ACS BUFFERS BY MEANS OF 3/32 W TRIX. LEC OUTPUTS CL50 AND CL5C DRIVE LAMP DRIVERS IN BOTH MCR AND ACS BUFFERS.
 - FLASH RATE IS 5 HZ, 50% DUTY CYCLE.
 - "E" DESIGNATES TESTPOINT ON CARD FRONT ACCESSIBLE WHEN LOGIC CABINET FRONT DOOR IS OPENED.
 - PROGRAM PANEL TB POINTS ARE SHOWN THUS [7] PRINTED CIRCUIT CONNECTOR PINS ARE SHOWN THUS [6]. SIGNALS NOT AVAILABLE ON PROGRAM PANEL ARE SHOWN [X].

PROJECT BELLEFONTE NR
CONTRACT 2543-8550
DRAWING NO. KFB 2316
SHEET 1 REV 9 UNIT 172

QTY ALSO FOR BULK NO.	ITEM NO.	NOMENCLATURE OR DESCRIPTION	DWG SIZE	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTE	REMARKS

APPROVED
THIS APPROVED DRAWING HAS BEEN CHECKED FOR CONFORMANCE WITH THE DRAWING AND THE QUALITY CONTROL DEPARTMENT OF THE COMPANY.
DATE: AUG 26 1977

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
X .XX .XX .XX ANGLES
2.00 ± .01 2.000 ± .002
FRACTIONS 2
ALL MACH. SURFACES ✓ RBS
DRAFTER: KENT LAMBERT 8-22-75
DATE: 10-7-75
RELEASED: 10-16-75

MATERIAL: #
FINISH: #

CONSOLIDATED CONTROLS CORPORATION
EL SEGUNDO, CALIF.

LOGIC DIAGRAM
LOGIC ELEMENT CONTROLLER (LEC)

SIZE CODE IDENTIFYING NO. F 02750
FOR BELLEFONTE NUCLEAR PLANT UNIT 172
CONTRACT NO. 2543-8550
TENNESSEE VALLEY AUTHORITY

DATE: 10-7-75
SHEET 1 OF 1

Desk # 50-438
Cont # 820207
Date 8/20/77
REGULATORY DOCKET FILE